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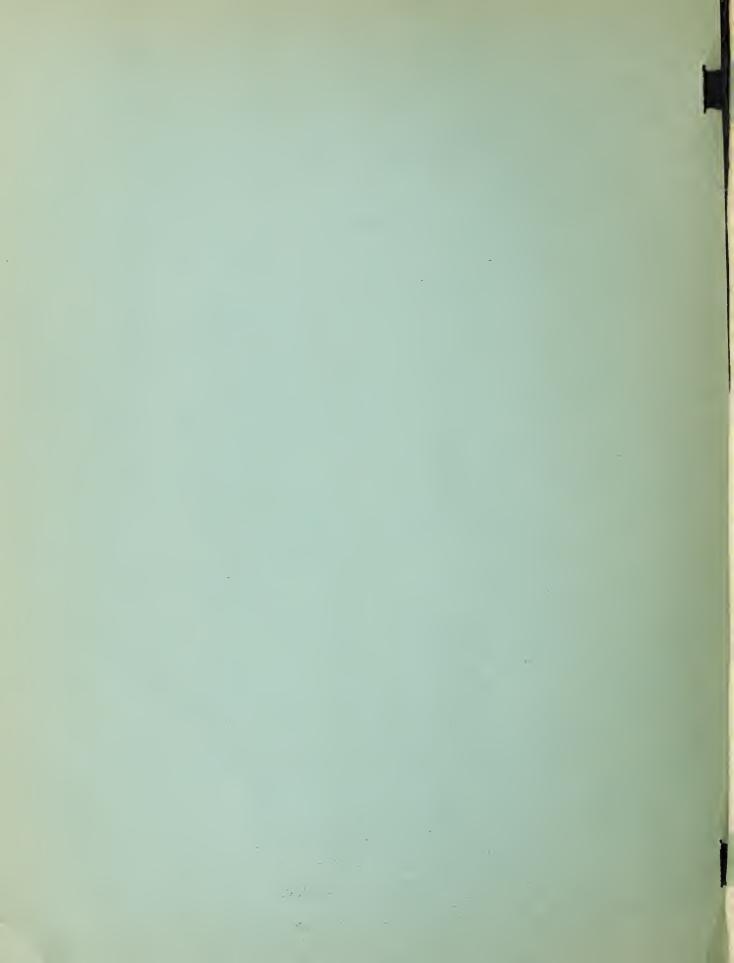
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Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, National Park Service, State Engineers of Colorado, Wyoming and New Mexico and other Federal, State and local organizations.

MAY 1, 1952



# FEDERAL-STATE COOPERATIVE

# SNOW SURVEYS AND IRRIGATION

# WATER SUPPLY FORECASTS

FOR

RIO GRANDE BASIN

MAY 1, 1952

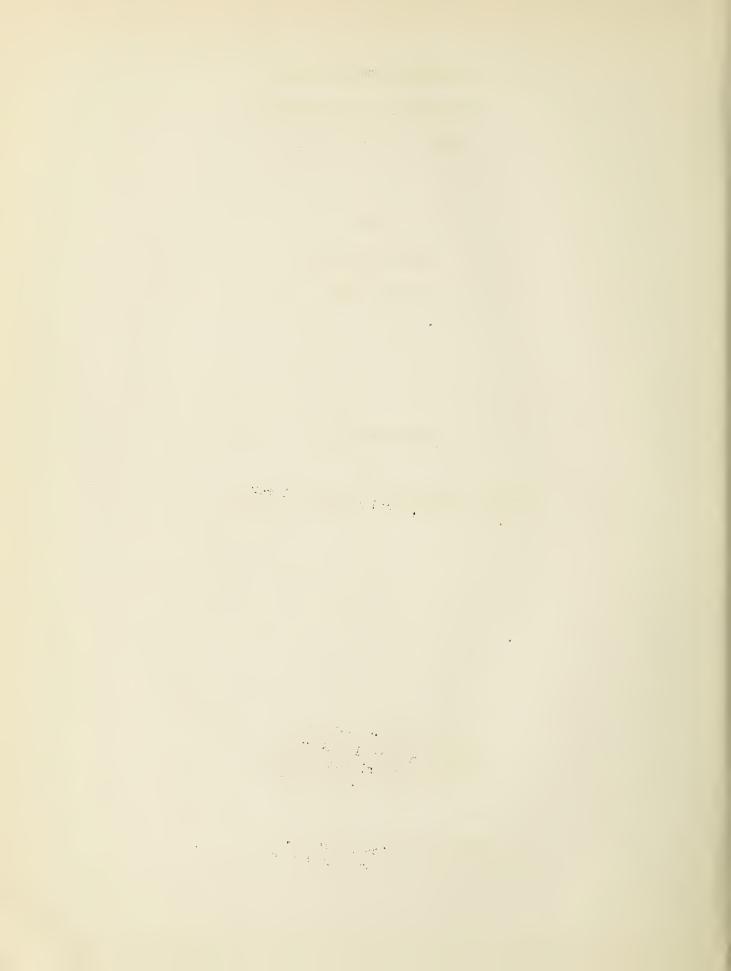
Report Prepared

by

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General Series Paper No. 518 Colorado Agricultural Experiment Station



# WATER SUPPLY OUTLOOK RIO GRANDE AND CANADIAN DRAINAGE BASINS May 1, 1952

The snow-melt season runoff of the Rio Grande and its tributaries in San Luis Valley will be very high in 1952. Similar runoff may be expected on the Rio Chamo above El Vado reservoir. The flow of the Rio Grande through New Mexico will be above normal but materially less than for the previous high year of 1941. The flow of New Mexico tributaries will be much above normal in the extreme north and about normal near Toas and Santa Fe. Soil moisture conditions are described as good in San Luis Valley and fair to poor in New Mexico. Current stream flow is slightly above normal with substantial daily increases to be expected.

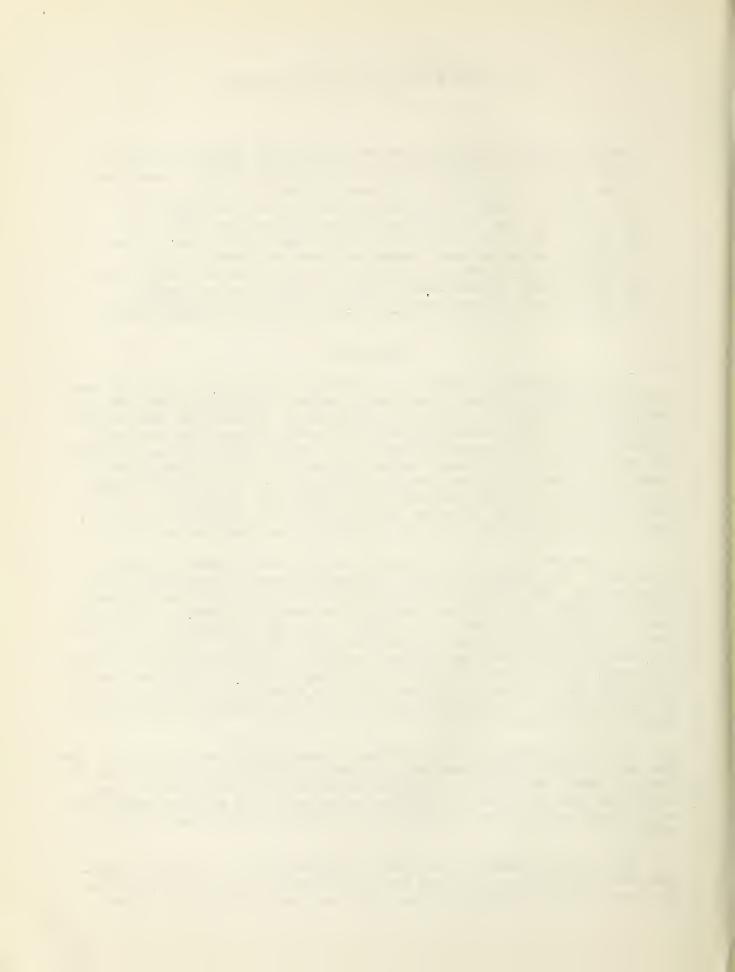
### RIO GRANDE

On the high mountain elevations of the Rio Grande watershed in Colorado there was a slight decline in snow water content during April from the record highs of April 1. Considerable melting of the snow has occurred at elevations up to 9500 feet.during the past month. Stream flow has been slightly above normalduring April and is well above normal during the first few days of May. The snow-melt season discharge of the Rio Grande, and particularly the Alamosa and Conejos rivers will probably equal or exceed any recent year for total seasonal flow. Snow water contents are still very high in the Sangre de Cristo Range and high summer runoff will occur. Soil moisture conditions in the San Luis Valley are described as good.

In Northern New Mexico practically all the snow is gone in exposed locations. In forested areas very little snow remains below 10,000 feet in elevation. The snow-melt season runoff of the Upper Rio Chama and other streams originating in the same area will be much above average. From the Sangre de Cristo range, well a ove normal flows may be expected on Costilla Creek and Red River. Normal to less than normal flow will occur on the southern tributaries between Toas and Santa Fe. Precipitation in the middle Rio Grande area has been slightly above average for April. Soil moisture conditions are recorted as fair to good. The seasonal flow on the main stem of the Rio Grande through New Mexico will be above normal but substantially less than the previous record.

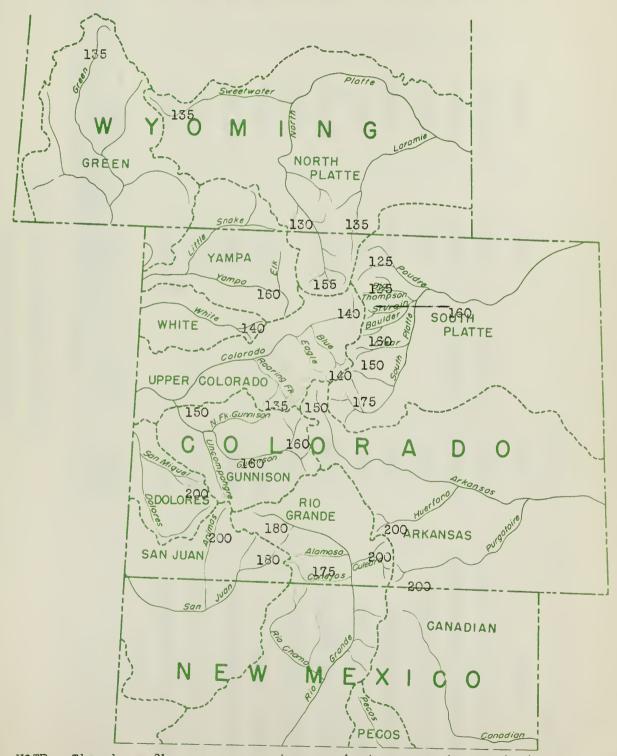
Storage in Elephant Butte and Caballo reservoirs is slightly higher than for April 1 with 110,000 acre feet in storage. This storage is a record low for this date. The inflow to Elephant Butte this year should be at least 50 percent more than the irrigation water demand. Soil moisture conditions on irrigated areas of the lower Rio Grande Valley are reported as fair to poor.

The snow-melt runoff on the Pecos watershed will be less than normal. The water supply on the Carlsbad Project is reported as critically short. The water supply in storage is low. Soil moisture conditions are poor.



WATER CONTENT OF SNOW ON THE WATERSHEDS OF PLATTE, ARKANSAS, UPPER COLORADO AND RIO GRANDE BASINS BASED ON SNOW SURVEYS MADE APPROXIMATELY FIRST DAY OF MONTH

In Percent of Normal May 1, 1952



NOTE: The above figures represent approximate snow water content remaining on snow courses as of May 1 in percent of normal and does not necessarily indicate expected summer runoff of the streams.



RIO GRANDE DRAINAGE BASINS STREAM FLOW FORECASTS, May 1, 1952

		May-Se	May-Sept., Incl., Street	Streamflow, Acre Feet	
BASIN AND STREAM	Forecast	1	Measured Runoff		10-year avg.
	1952	1951	1950	1949	1941-1950
RIO GRANDE					
South Fork at South Fork	225,000		100,000	197,000	11,6,000
Rio Grande at Del Norte	1,000,000	252,000	397,000	832,000	620,000
Alamosa above Terrace Res.	140,000		26,000	105,000	82,000
Conejos at Mogote	1,25,000	107,000	148,000	268,000	226,000
Culebra at San Luis	80,000			35,000	37,000
Rio Chama at Park View	375,000		154,000	320,000	232,000
Costilla at Costilla	000,09	15,000	15,000	33,000	38,000
Toas at Los Cordovas	35,000		6,200	28,000	43,000
Embudo Creek at Dixon	55,000		3,000	53,000	000*09
Rio Grande at Otowi Bridge	1,650,000*	201,000	267,000	962,000	903,000
Rio Grande at San Marcial	1,350,000	23,000	55,000	852,000	707,000
Pecos at Pecos	50,000		13,000	79,000	000,69
*Including change in storage in El Vado Res.	in El Vado Res.				



SNOW SURVEYS AND IRRIGATION WATER FORECASTS RIO GRANDE BASIN

STATUS OF RESERVOIR STORAGE, May 1, 1952

STREAM	RESERVOIR	USABLE CAPACITY	1962	1,000 A.F. Storage, April 1	torage, A	ipril 1	77XV 44X-0
		1000 A.F.	-//-	1//1		11/1	1942-1951
RIO GRANDE	Rio Grande	45.0	2.6	5.1	19.7	21.2	17.7
	Santa Maria	7.0	2 9	2.9	22.5	17.3	12.8
	Sanchez	103.0	7.8	3.4	9.6	8.9	15.2
	Terrace	17.7	3.4	1.8	7.7	2.7	7.7
	Continental	26.7	6.9	50	19.0	12.6	11.4
	Platoro	0.09	8,0				1
	Elephant Butte	2273.7	53.9	196.8	615.2	508.3	920.7
	Caballo	356.0	56.5	744.1	193.7	149.4	193.2
CHALLA RIVER	El Vado	226.0	30.0**	30.0	0*99	115.0	103.9
CANADIAN RIVER	Conchas	0*009	201,2	268.3	288.8	300°9	335.8
PECOS RIVER	Alamogordo McMillan-avalon	148.0 45.0	7.1	75.0	73.6	3.9	114.2 9.8
	-						

\*Some for shorter periods \*\* Involuntary storage

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# SNOW SURVEYS AND IRRIGATION WATER FORECASTS for ROW GRANDE BASIN May 1, 1952

SURMARY OF MAY 1 SNOW SURVEYS AND COMPARISON OF DATA WITH THAT OF PREVIOUS YEARS BY WATERSHEDS

	Snow	Snow	Nater	Content	Water Content in Inches	No. of	Snow	1952 Water	1952 Water Content in
WA TERSHEDS	Depth					courses	Density	percent of	t of
	1952	1	) (	) (	15 yr.°*	in	1952		
	ruches 1952	1952	1757	1250	Avg.	Avgo	percent	1951	15 yr. Avg.*
Rio Grande (Colo.)	28.7	13.4	1,07	1:03	7.	0	91	264	178
Upper Rio Grande	33.6	17.7	7.0	5,6	6.6	m	23	254	179
Alamosa River	1,8.2	19.9	8,1	10,9	11.8	2	그	246	169
Conejos River	36.2	19.2	1.1	2.0	ν, γ	m	23	1,70	350
Culebra River	14.9	21.2	4.5	000	8.7		147	171	243
						_		_	
*Some for shorter pariods	Spoined								

# DATA PRECIPITATION

WATERSHED	STATE	Precipitation October 1 to April 30	Departure from normal	Precipitation April	Departure from normal
Canadian Rio Grande Rio Grande (W) Rio Grande (S)	New Mexico Colorado New Mexico New Mexico New Mexico		-1.52 +1.53 -0.76 -2.34	0.95 1.29 0.56 0.92	-0.42 +0.40 -0.03 +0.10
*Average of Selecte	*Average of Selected High Elevation Stations	ons			



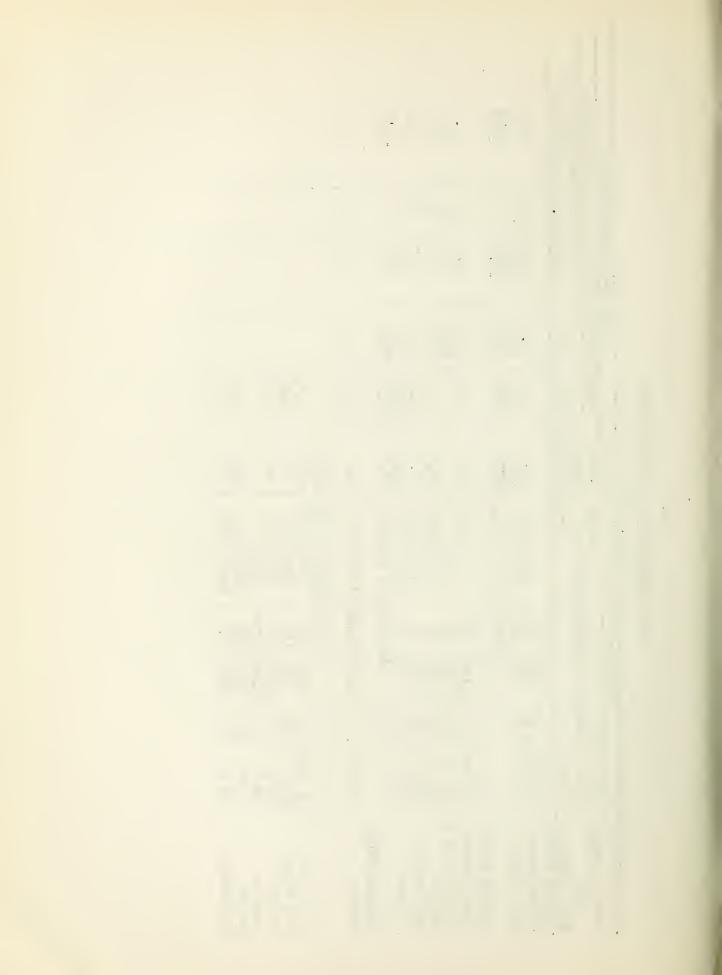
-5-RIO GRANDE DRAINAGE SNOW SURVIYS May 1, 1952

		Past Record	Yrsoof Avowater Con-	tent (Inches)		26.6	2,1	6.0	1,0	3.6	22.6	1,1	8.7	9°0	10.7	0.1	10.3	യ	5.2	2•3	٠ <u>٠</u> ٥	2.4	;	1	1	•	7.5		26.6	7°C	6.6
- 1			Yrsoof	Rec.		16	16	15	15	16	12	13	12	임	m	m	m	~	m	m	m	<u>~</u>	~	_	٦	H			16.	97 6	ì
	SNOW	(Inches)		1950		16.8	0.0	0.0	0.0	000	21.8	0.0	0.0	000	v. O	0.0	2,0	0.3	0.0	000	0,0	0.0	;	1	1	1	4.3		16.8	0 0	2.6
		Content		1951		20.9	0.0	0.0	0.0	1.0	16.2	0.0	4.5	೦°೦	9.8	000	7.7	1.9	3.9	7.7	0°0	3.1	6.4	28.8	۳ م ه	22.1	1.1		20.9	0 0	200
		Water		1952		49.2	2,7	2.1	2,1	4°5	37.7	1.1	21.2	00	30.5	3.2	10.8	10.6	13.9	3.0	0	7.	15.2	15.8	14.1	51.7	13.4		149.2	2 -	17.7
		Snow	Depth			91.0	7.9	5.2	5.7	10.7	91.2	2.0	6-14	000	59.2	9.9	74.1	36.6	36.55	7.6	000	13,2	34.4	0.76	36.0	116.7	28.7		91.0	0,0	33.6
- 1726		Date	of	Survey		5/1	1/30	5/1	5/1	5/2	5/1	5/1	1/30							4/29	67, 33	1/30	5/1	5/1	1/29	5/1	age			4/30 1/30	, se , t
May			Elev.			10000	9350	0096	9300	9300	11500	9700	10000	8200	9950	9450	10100	10300	10900	10000	10000	10000	9800	11000	10400	11000	r drainage		10000	9350	drainage
ation a			Range			2E	T.	因	<b>E</b>	70 W	<u>된</u>	2M	105°2W	72W	Mt.	旦	出	234	M.	2E	黑	EEI (	E/	8 E	3M	强	rage for		图?	7. Z F.	ွှင့
	Location		-dwI			37N	NOT	36N	33N	285	37N	NTH	37.2N	29N	36N	35N	321:	LTNI INT	42N	L'I.N	LON	1,53	NT7	L:21	L IN	37N	Aver		37N	NO7	ai
-	7		Sec			7	13	15	25	22	30	ω		13	22	25	54	28	2	19	32	임	눤	57	2	9				n m	-
		No.	and	State	COLORADO	26 Colo	127 m	172 "	ıı 67	177 11	76 m	80 "	82 "	<u>"</u> †8	108 "	109 "	110 "	122 "	123 "	# † Z	125 "	<u>" 921</u>	" 121	153 "	157 "	#155 "			C	80 #	)
		Drainage Basin	and	Snow Course	RIO GRANDE IN CO.	Wolf Creek Pass	Upper Rio Grande	Silver Lakes	River Springs	La Veta Pass #2	Summitville	Santa Maria	Culebra	Ft. Garland	Platoro	West Conejos	La Manga	Pyramid	Creek	Fool Table Mt.	Lake Humphreys	Cochetopa Pass	Howardville	Red Mt. Pass	Porcupine	Wolf Creek Summit155		UPPER RIO GRANDE	Wolf Creek Pass	Upper Rio Grande Santa Maria	

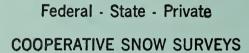


-6-RIO GRANDE DRAINAGE SNOW SURVEYS May 1, 1952

+ c	Past Record	Yrs.of Av. Water Con-	tent (Inches)		6.0	22,6	8		1.0	17.7	10.7	0.1	10.3	1		8.7								
2 Gilmonting C		Yrs.of A	Rec.   t	1	777	11			15	16	m	. M	· M			12					,			
Snow Cover Measurements	(Inches)		1950 Rec.		0.0	21.8	10.9		0	0.9	5.0	00	2.9	2.0		0.0								
Snow	Content		1951		0,0	16.2	2	_	000	10.5	8,6	000	7.5	4.1		4.5								
	Water		1952		2.1	37.7	19.9		2.2		30.5	3.2	1,0.8	19.2		21.2		1,1	000	0.0		7.9	0.0	
	Snow	Depth	(Inches)		5.2	91,2	148.2		5,1		59.2	9•9	74.1	36.2		6*11	MEXICO	2.2	000	0.0		18.2	0°0	
	Date	of	Survey		5/1	5,7	inage		5/1		5/2	5/2	5/2	inage				5/1	5/1	5/1		5/1	5/1	
		Elev. of			9000	17500   5/1	for drainage		9300	10000	9950	9450	10100	for drainage		10000	RIO GRANDE IN NEW	9500	9000	9700			10000	
Location		Range			<b>万</b> 臣	当	Average		6E	云	M	当	瓦	Average		37.2N 105.2W 10000 4/30	RIO G	28N 15E	13E	Œ	.06°7™	13至	11E	-
		Twp.			36N	37N	⋖		33N	32N	36M	35N	32N	₹		37.2N		28 <u>N</u>	22N	28N	37.9M	221	18N	-
		Seco			. 15	30			25	17-	22	52	57			_		53	23	9		22	17	
	No.	and	State		47 Colo, 15	u 91			49 Colo 25	11 22	108 "	109 "	110 "			82 Colo		1 NoMe	=	15 "	18 "	19 "	177	
	Drainage Basin	and	Snow Course	ALAMOSA RIVER	Silver Lakes	Summitville		CONEJOS RIVER	River Springs	Cumbres Pass #2	Platoro	West Conejos	La Manga		CULEBRA RIVER	Culebra		Red River	Tres Ritos	Pay Role	Chamita	Cordova	Big Tesuque	







Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation, navigation, mining and industry

"WATER IS THE WEST'S GREATEST RESOURCE"